

Small Changes in Freshmen Biology Lab Create Unexpected Opportunities for Research, Collaboration, and Student Success

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In 2006, faculty teaching an introductory biology course at North Hennepin Community College added polymerase chain reaction to a lab designed to teach gel electrophoresis. At the time it seemed like an important but small addition to a course mostly populated with students heading to pre-health careers. In this presentation, we illustrate how a minor change in one lab course can have a ripple effect through multiple courses and dramatically transform the objectives and goals of an entire department.

The PCR-based lab necessitated additional equipment not previously present in the department. Basic tools of the trade such as micropipettors, gel boxes, and thermal cyclers were purchased. New equipment led to a proliferation of inquiry-based and student-centered labs; our community college biology lab began to look a lot more like labs at four-year universities. The confidence and enthusiasm of both faculty and students dramatically increased. This led to the development of faculty-guided undergraduate research in biology. College administration supported the acquisition of additional lab equipment and supplies. Over the next few years the extracurricular research projects formed the basis of new labs in a variety of courses. Importantly, they were the impetus for financial support through donors and collaborative grants with several universities. For the first time, and unusual for community colleges in the state, NHCC students were presenting their research at regional and national conferences. Faculty became involved in the Council of Undergraduate Research and interacted with professional societies to a much greater degree. Each step facilitated synergism between courses and research, which led to further grants, greater donor and administrative support, and a four-year biology degree on our campus. One small step led to large changes. Our experiences may provide one model for other two-year colleges.

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